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### REMARKS

Applicants thank the Examiner for the consideration given the present application. Claims 3, 10, and 14-26 are pending, of which claims 3, 10, 21, 23, and 25 are independent.

Applicants traverse and request reconsideration of the rejection of claims 10, 14, 15, 17, 18, and 20 under 35 U.S.C. §102(b) as being anticipated by or, in the alternative, under 35 U.S.C. §103(a) as being obvious over U.S. Patent No. 5,627,113 to Debnath. (The reference to U.S. 5,627,112 on page 2 of the Office Action appears to be a typographical error.)

Without acquiescing to any ground of rejection, but merely to expedite prosecution, independent claim 10 is amended to recite a luminescent glass obtained by a process having a combination of steps, including adsorbing, to a porous high silica glass, at least one metal component selected from the group consisting of Sc, Y, La, Pr, Nd, Pm, Gd, Tb, Dy, Ho, Er, Tm, Yb, Lu, and elements of Groups IIIA, IVA, VA, VIA, VIIA, VIII, IIB and IVB of the Periodic Table, and thereafter heating the porous glass in a reducing atmosphere, the luminescent glass comprising at least 96 wt. % of SiO<sub>2</sub>, 0.5 to 3 wt. % of B<sub>2</sub>O<sub>3</sub>, 0.1 to 1.5 wt. % of Al<sub>2</sub>O<sub>3</sub>, and 50 to 2000 ppm of at least one metal component selected from the group consisting of Sc, Y, La, Pr, Nd, Pm, Gd, Tb, Dy, Ho, Er, Tm, Yb, Lu, and elements of Groups IIIA, IVA, VA, VIA, VIIA, VIII, IIB and IVB of the Periodic Table.

To sustain a rejection under 35 U.S.C. §102, a reference claim must recite all of the features of the rejected claim. Debnath does not disclose a luminescent glass obtained by the above-described process. Rather, Debnath merely describes a thermoluminescence dosimeter glass composition. In Debnath, a glass is produced by preparing a silica-rich glass comprising 94-97% of SiO<sub>2</sub>, 0.4 to 2% of Al<sub>2</sub>O<sub>3</sub>, 0.02 to 1% of M<sub>2</sub>O (M = Na or K), and 2-6% of B<sub>2</sub>O<sub>3</sub>, and introducing Cu (I) at a concentration of 10<sup>16</sup> to 10<sup>19</sup> ions/cm<sup>3</sup> into the silica-rich glass.



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Thus, among the metal components (i.e., luminescent components) disclosed as being incorporated into the luminescent glass in the specification of the present application as originally filed, Cu is used in the silica rich glass disclosed in Debnath. More specifically, a silica-rich glass containing Cu is disclosed in Debnath.

In comparison, the luminescent glass of amended independent claim 10 contains no elements of Group IB. In amended independent claim 10, the elements of Group IB are deleted from the choices for the metal component to be adsorbed to a high silica glass. Claim 15 is also amended to delete Cu from the choices for the metal component. In view of the deletion of the elements of Group IB from claim 10, claim 15, which depends from claim 10, is amended to delete Ag, which belongs to the elements of Group IB. The luminescent glasses recited in the other claims of the present application do not contain Cu or any other element of Group IB as a luminescent element.

Since none of the luminescent components incorporated in the luminescent glasses of the claims of the present application is disclosed in Debnath, Debnath cannot anticipate the inventions of claims 10, 14, 15, 17, and 18. Reconsideration and withdrawal are requested of the rejection of claims 10, 14, 15, 17, 18, and 20 under 35 U.S.C. §102(b) as being anticipated by or, in the alternative, under 35 U.S.C. §103(a) as being obvious over the Debnath patent.

Applicants also traverse and request reconsideration of the rejection of claims 16 and 19 are rejected under 35 U.S.C. §103(a) as being obvious over Debnath '113 in view of U.S. 6,211,526 to Huston et al.

Claims 16 and 19 depend from independent claim 10 and are allowable for at least the same reasons inasmuch as Huston fails to cure the shortcomings of Debnath as a primary reference.



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Applicants agree with the Examiner that Debnath fails to disclose a high silica glass containing a rare earth dopant according to claim 16 or an additional dopant according to claim 19. Applicants do not agree that Huston discloses a luminescent glass doped with a sulfide compound of copper or cerium, or that Huston discloses a luminescent glass which uses a Vycor® glass doped with a sulfide compound and copper or cerium.

Claim 16 is directed to a luminescent glass, wherein the metal component to be adsorbed to the porous high silica glass is a rare earth element or elements. Amended claim 16 limits the rare earth element to "at least one metal component selected from the group consisting of Sc, Y, La, Pr, Nd, Pm, Gd, Tb, Dy, Ho, Er, Tm, Yb, and Lu." These rare earth elements are determined by selecting all the specific examples of the elements of Group IIIA described on page 7, lines 30-35, of the present specification, but excluding cerium, samarium, and europium therefrom. Similarly, claim 10 is amended to recite the above-mentioned rare earth elements, and claim 15 is amended to delete cerium and europium.

None of the metal components used as luminescent components in the luminescent glass of amended claim 16 is disclosed in Debnath or Huston. Thus, one of ordinary skill in the art would not have expected from Debnath and Huston that a high silica glass containing a specific metal component as recited in amended claim 16 to emit strong fluorescence.

Hence, the invention of amended claim 16 would clearly have been unobvious over Debnath and Huston, taken alone or in combination.

As noted, claim 19 depends from independent claim 10 and is allowable for at least the same reasons. Amended claim 19 is directed to a luminescent glass obtained by a process comprising adsorbing a sensitizer component, in addition to the components of claim 10.



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The Office Action asserts that Huston discloses a luminescent glass which uses a Vicor® glass doped with a sulfide compound and copper or cerium. Claim 19 is amended to delete S from the choices for the sensitizer component, i.e., the sensitizer component is "at least one element selected from the group consisting of consisting of B, N, F, Al, and P". None of the sensitizer components recited in amended claim 19 is disclosed in either Debnath or Huston, and none would have been suggested by these references.

In addition, as explained above, none of the luminescent components (i.e., metal components) recited in amended claim 10 is disclosed in Debnath or Huston. Accordingly, the luminescent glass of amended claim 19 comprises a luminescent component and a sensitizer component, neither of which is disclosed in Debnath or Huston. Thus, the invention of amended claim 19 would have been unobvious over Debnath and Huston.

In view of the foregoing amendments and remarks, reconsideration and withdrawal of the outstanding rejections are respectfully requested. The application is in condition for allowance, and such Notice is courteously solicited.




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Applicants hereby request a three-month extension of time in which to file this reply. The Commissioner is hereby authorized to charge the three-month extension fee of \$1110 to Deposit Account No. 06-1135 with reference to Order No. 8156/84334. The Commissioner is further authorized to charge any other required fee not intentionally omitted, including extension, application processing, extra claims, statutory disclaimer, issue, and publication fees, to said Deposit Account with reference to said order number.

Respectfully submitted,

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